

## CLAIMS

What is claimed is:

1. A method for detecting and classifying a structure of interest in a three-dimensional medical image, comprising the steps of:
  - 5 (a) defining one or more image planes in a subvolume in said three-dimensional medical image;
  - (b) determining edge displacement fields for a plurality of slices in each of said defined image plane, wherein said plurality of slices are defined over the axis perpendicular to said corresponding image plane;
  - 10 (c) combining said determined edge displacement fields for each of said defined image plane;
  - (d) determining parameters based on said combined edge displacement field; and
  - (e) classifying said structure of interest based on said determined parameters.
- 15 2. The method as set forth in claim 1, wherein at least two of said defined image planes are mutually orthogonal image planes.
3. The method as set forth in claim 1, wherein said step of classifying is based on a combination of said parameters determined from two or more of said defined  
20 image planes.

4. The method as set forth in claim 1, wherein the step of classifying further comprises the step of distinguishing a polyp from a non-polyp.
5. The method as set forth in claim 1, wherein said subvolume is selected by a pre-detection of said structure of interest.
6. The method as set forth in claim 1, wherein said three-dimensional medical image comprises a three-dimensional segmented computed tomography image.
7. A method for detecting and classifying a structure of interest in a three-dimensional medical image, comprising:
- (a) in a pre-processing step, detecting said structure of interest in said three-dimensional medical image;
  - (b) in a post-processing step, determining parameters based on edge displacement fields determined for said detected structure of interest and classifying said detected structure of interest based on said determined parameters.
8. The method as set forth in claim 7, wherein said edge displacement fields are determined for a plurality of slices in each of one or more image planes defined for said detected structure of interest, wherein said plurality of slides are defined over the axis perpendicular to said corresponding image plane.

9. The method as set forth in claim 7, wherein the step of classifying further comprises the step of distinguishing a polyp from a non-polyp.
10. The method as set forth in claim 7, wherein said three-dimensional medical  
5 image comprises a three-dimensional segmented computed tomography image.
11. A program storage device accessible by a computer, tangible embodying a program of instructions executable by said computer to perform method steps for detecting and classifying a structure of interest in a three-dimensional medical image, comprising:
- 10 (a) means for defining one or more image planes in a subvolume in said three-dimensional medical image;
- (b) means for determining edge displacement fields for a plurality of slices in each of said defined image plane, wherein said plurality of slices are defined over the axis perpendicular to said corresponding image plane;
- 15 (c) means for combining said determined edge displacement fields for each of said defined image plane;
- (d) means for determining parameters based on said combined edge displacement field; and
- (e) means for classifying said structure of interest based on said determined  
20 parameters.

12. The program storage device as set forth in claim 11, wherein at least two of said defined image planes are mutually orthogonal image planes.
13. The program storage device as set forth in claim 11, wherein said means for  
5 classifying is based on a combination of said parameters determined from two or more of said defined image planes.
14. The program storage device as set forth in claim 11, wherein said means for  
10 classifying further comprises means for distinguishing a polyp from a non-polyp.
15. The program storage device as set forth in claim 11, wherein said subvolume is selected by a pre-detection of said structure of interest.
16. The program storage device as set forth in claim 11, wherein said three-  
15 dimensional medical image comprises a three-dimensional segmented computed tomography image.